

Superpower	Genes	Origin	Superhero	Explantions	Super Weakness
Ability to hold breath really long	Hemoglobin genes. Alpha/Beta Subunits	Crocodylus siamensis (crocodiles)	Aquaman	Oxygen affinity in hemoglobin is decreased so more oxygen is released directly to tissue	staying too long underwater
Ability to control emotions	SLC6A4	Homo Sapiens		This serotonin transporter, if made more efficient, would regulate the concentration of serotonin binding to receptor sites. This gives the user adaptive ability to control his/her emotions	Funerals and chick flicks
Ability to gain weight quickly (or obesity)	IRX3 and FTO	Homo Sapiens. (and really fat animals)	Bouncy Boy	IRX3 controls body mass and regulates body composition. FTO turns on this gene.	Chocolate
Ability to grow hair really fast	LHX2 (gene for hair) put under high constutive promoter	Homo Sapiens (and really furry animals)		LHX2 regulates hair growth during a hair follicle's expansion, or Anagen, phase.	Increasing price of haircuts and shampoo
Ability to not sleep	DEC.2	Homo Sapiens		gene regulates circadian rhythm and allows for higher levels of rejuvination from shorter sleep times	Bedtime

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Absorb DNA	Genomic clusters from rotifers	Rotifera	Rogue	Rotifers reproduce asexually; are indestructable; can absorb DNA from its environment and adopt new traits. This occurs whenever rehydrated to incorporate genetic diversity in the species.	Genetic disorders
Absorb Metal	Genomic clusters	Crysmallon squamiferum (Scaly Foot Gastropod)	Collosus	Absorbs iron sulfide from environment and incorporates into its shell as superior defense mechanism.	Sinking in the ocean. Whoops
Antibiotic resistance	AmpR	hospital bacterium isolate [patient Thomas Edison Murphy TEM,1963)]; transposon Tn3		Codes for beta-lactamase and breaks down the antibiotic. Hooray! You passed the selection test.	Other kinds of antibiotics. Wait, you're not a bacteria. In which case, this power sucks.
Camouflage	AGRP2	Bothus mancus (peacock flounder)	Mystique	Together, the versatile agouti proteins and melanocortin receptors are responsible for regulation of body weight, the banded patterns of mammalian coats, and even red hair in most people. Affects pigment production and provides adaptive camoflounge to mimic the environment.	Standing out in a crowd

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Cold Resistance	AFGP (Antifreeze glycoproteins)	<i>Pseudopleurone ctes americanus</i> (Winter Flounder)		proteins bind to and inhibit growth of ice crystals within body fluids through an absorption-inhibition process	Volcanos
Eating Radiation	TYR	<u>Cladosporium sp haerospermum,</u> (Radiophilic Bacteria)	Godzilla	Codes for tyrosinase, as important enzyme in melanin production. Melanin acts as a protection from radiation and can stimulate growth.	Superdark skin
Echolocation	SLC26A5	Macroderma gigas (Ghost Bat)		Codes for prestin, a motor protein of the hair cells in the inner ear. By fine-tuning the production of these proteins, you can increase the sensitivity to echolocation and sound waves.	Large spaces. Loud noises
Elasticity	Mutated ADAMTS2, COL1A1, COL1A2, COL3A1, COL5A1, COL5A2, PLOD1, and TNXB also, FBN1	Anemonia Sulcata (Sea Anenome)	Mr. Fantastic	Marfan syndrome mutates connective tissues that allow for super flexibility and long limbs. This creates an upregulation in fibrillin, a fiber protein in connective tissue. An associated disease, Ehler's Danlos syndrome allows for stretchy skin and joints through mutations in collagen.	Near sightedness, heart defects. Weak muscles

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Glow Green	GFP	<i>Aequorea victoria</i> (jellyfish)		Codes for a fluorescent protein found in jellyfish. Can be used for mating rituals or scaring off predators. This works by absorbing a certain range of wavelengths of light and emitting the absorbed energy as green fluorescence	Hide and seek.
Heat Resistance	PvGRX5	<i>Pteris vittata</i> (Chinese Ladder Brake)		increases production of beta-alanine and vitamin B-5 which allows plants to survive in high heat stress	The frozen tundra
Immortality	TERT,[8] TERC,[9] DKC1,[10] and TEP1 (Telomerase genes regulated by a high constitutive promoter); or unknown genes in jellyfish	Cancer cells and tumors have this		Telomerase stabilizes the ends of chromosomes after replication, keeping protein-coding genes intact	Cancer?
Increased Aging	LMNA	Homo Sapiens		LMNA codes for proteins that support the cell nucleus; mutations in the gene cause premature degrading of the nucleus.	Kid's Prices
Indestructibility	Genomic clusters from tardigrades?	Tardigrades or Deinococcus radiodurans (Waterbears)	Superman. (or rocks, but like, living)	resistant to temperatures from near-absolute zero to boiling temperature, radiation, extreme pressure, lack of oxygen, lack of food, lack of water	You look kinda funky

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Insensitivity to pain	Mutated SCN9A	Homo Sapiens		Lack of functional alpha subunits impairs the transmission of pain signals from the site of injury to the brain	Increased risk of severe damage to vital organs
Night Vision	TRPM1; nyctalopin	Felis catus (House Cats)		nyctalopin coordinates the assembly and precise delivery to synapses. Neurons are able to read low level light signals.	Turn your highbeams off.
Photosynthesis	Genomic cluster from Heliobacillus mobilis	Heliobacillus mobilis	Superman	Codes for enzymes in chloroplasts that can use light as energy	The dark
Regeneration	Lin28a	Fetuses		gene reprograms cells back to embryonic-like stem cells by utilizing metabolism to repair tissues	Turning back into a fetus
Shooting spider webs	MaSp1 & MaSp2	Nephila clavipes (golden orb weaver)	Spiderman	Codes for small peptide motifs that, when combined, create spider silk.	You can make webs... but just make 'em
Smell like rotting meat	FMO3	Homo Sapiens		Codes for an enzyme that metabolizes trimethylamine. This cannot break down and is released with a fishy smell and strong BO.	Parties and friends

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Super Endurance	Mutated EpoR	Homo Sapiens. High activity in migratory birds.		Mutations in the erythropoietin receptor gene allows more oxygen to be carried by red blood cells and thus less fatigue from strenuous activities	Anemia, hypoxic stress (low oxygen in parts of the body)
Super Memory/Intelligence	NMDA (N-methyl D-Aspartate) Receptor Protein Gene	Mice (mus musculus)		overexpression of NR2B leads to an increase of NMDA receptors which leads to enhanced learning and memory	Pain
Super Sight	Mutated MFRP (membrane-type frizzled related protein)	Homo Sapiens	Hawkeye?	Protein that regulates eye development.	Things really close to you
Super Speed	actn3 (Sports and endurance). VHL, RET, NF1 , SDHB and SDHD (adrenaline production)	Homo Sapiens.	Flash	Pheochromocytoma. Overproduction of adrenaline gives you a superboost. Increases heart rate Increases respiratory rate Vasoconstriction and vasodilation Liver Stimulates glycogenolysis Triggers lipolysis Muscle contraction	Panic attacks and anxiety.

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Super Speed (2)	MSTN	Equus ferus caballus (Racing Horses)	Flash	Myostatin is a muscle regulator. Deletion results in overproduction of muscle. Homozygous genotype leads to super speed.	You'll have very little muscle mass
Super Strength	MSTN	Homo Sapiens	Hulk	Mutations that reduce the production of functional myostatin lead to an overgrowth of muscle tissue.	Short life span, constant hunger
Super Taste	TAS2R38	Homo Sapiens		Gene codes for increased number of fungiform papillae. This also increases the number of taste buds and receptors for certain chemicals. Heightened taste response, particularly to bitterness, would represent an important advantage in avoiding potentially toxic plant alkaloids.	Brussel Sprouts
Thermal vision	TRPA1	Crotalus scutulatus (Rattlesnakes)		<u>ion channel located on the plasma membrane of many human and animal cells.</u> <u>This ion channel is best known as a sensor for environmental irritants, pain, cold and stretch.</u>	Coldness

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Shark Teeth	OSR2	Carcharodon carcharias (Great White Sharks)		Codes for protein odd-skipped-related 2 which is used in the prevention of further formation of teeth after the eruption of adult teeth. Silencing this causes multiple rows of teeth to grow.	Brushing twice a day
Venom	Factor X	Oxyuranus microlepidotus (Inland Taipan)		Part of a cascading pathway that clots blood. Pro-coagulant; can cause human blood to clot in seconds.	Accidently biting your tongue